

What is claimed is:

1. A balloon angioplasty catheter comprising:  
an elongated catheter body;  
a balloon;  
a perfusion lumen extending through the balloon, the perfusion lumen having a distal end and a proximal end; and  
a guidewire lumen, wherein the guidewire lumen is external to the perfusion lumen.
2. A balloon angioplasty catheter as recited in claim 1, further having a balloon inflation lumen molded member wherein the guidewire lumen is internal to the molded member.
3. A balloon angioplasty catheter as recited in claim 2, wherein the perfusion lumen has a metallic ribbon coil support.
4. A balloon angioplasty catheter comprising:  
an elongated catheter body;  
a balloon;  
a perfusion lumen extending through the balloon, the perfusion lumen having a distal end and a proximal end; wherein the perfusion lumen distal end has a smaller cross section than the perfusion lumen proximal end.

5. A balloon angioplasty catheter as recited in claim 4, wherein the perfusion lumen includes a metallic ribbon coil support.

6. A balloon angioplasty catheter as recited in claim 4, further comprising a guidewire lumen, wherein the guidewire lumen is external to the perfusion lumen.

7. A balloon angioplasty catheter comprising:

an elongated catheter body;

a balloon;

a perfusion lumen extending through the balloon, the perfusion lumen having a wall, a distal end, and a proximal end;

wherein the perfusion lumen wall includes an inflatable coil, the inflatable coil giving structural support to the perfusion lumen when inflated.

8. A balloon angioplasty catheter as recited in claim 7, further comprising a perfusion lumen inflation lumen, wherein the perfusion lumen inflatable coil is in fluid communication with the perfusion lumen inflation lumen, such that the inflatable coil is inflatable by fluid delivered through the perfusion lumen inflation lumen.

9. A balloon angioplasty catheter as recited in claim 8, further comprising a guidewire lumen, wherein the guidewire lumen is external to the perfusion lumen.

10. A balloon angioplasty catheter comprising:

an elongated catheter body;

a balloon;

a perfusion lumen extending through the balloon, the perfusion lumen having a distal end and a proximal end;

a guidewire lumen, the guidewire lumen being disposed through the perfusion lumen and being collapsible in the absence of an inserted guidewire.

11. A balloon angioplasty catheter as recited in claim 10, wherein the perfusion lumen includes a metallic ribbon coil support.

12. A balloon angioplasty catheter as recited in claim 10, wherein the perfusion lumen distal end has a smaller cross section than the perfusion lumen proximal end.